

Remarks

The Office Action mailed June 17, 2005 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1, 3, 4, 6-10, 13, 14, 16-21, 23 and 25 are now pending in this application. Claims 2, 5, 11, 12, 15, 22 and 24 are cancelled. Claims 1, 3, 9, 10, 13, 14, 16, 19, 20 and 23 have been amended. Claim 25 is newly added.

In accordance with 37 C.F.R. 1.136(a), a three month extension of time is submitted herewith to extend the due date of the response to the Office Action dated June 17, 2005, for the above-identified patent application from September 17, 2005, through and including December 19, 2005. In accordance with 37 C.F.R. 1.17(a)(3), authorization to charge a deposit account in the amount of \$510.00 to cover this extension of time request also is submitted herewith.

The rejection of Claims 1, 6-10 and 19-21 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,377,782 to Bishop et al. (hereinafter "Bishop"), is respectfully traversed.

Independent claim 1 has been amended to incorporate the limitations of former claims 2 and 5; independent claim 10 has been amended to incorporate the limitations of former claims 11 and 12; independent claim 14 has been amended to include the limitation of former claim 15; independent claim 19 has been amended to include the limitations of former claims 22 and 24.

As amended, independent claim 1 includes the limitation of a plurality of antenna nodes that each include a cable plant interface having a multi-carrier modulator including an OFDM multiplexer adapted to modulate signals received over the cable plant and output OFDM signals, and wherein at least some of the antenna nodes are configured to transmit the same signals at the same time on the same frequencies in overlapping coverage areas. Such features are not shown or suggested in Bishop, which discloses the use of DSSS IEEE802.11, rather than OFDM, for a wireless link, and which does not disclose simultaneous multicasting from a plurality of antenna nodes.

The remaining amended independent claims 10, 14 and 19 can each be distinguished from Bishop in a similar manner, and accordingly claims 1, 10, 14, 19 and the claims that depend therefrom are each directed to subject matter that is neither taught or suggested by Bishop and Applicants respectfully request that the Section 102 rejection of Claims 1, 6-10 and 19-21 be withdrawn.

The rejections of Claims 2, 3, 11, and 22 under 35 USC 103(a) as being unpatentable over Bishop in view of Flint et al., the rejections of Claims 4, 5, 12, 23, and 24 as being unpatentable over Bishop in view of Flint et al., and further in view of Chambers et al., the rejections of Claim 13 as being unpatentable over Bishop, the rejections of Claims 14, 17, and 18 as being unpatentable over Bishop in view of Chambers et al., and the rejections of Claims 15 and 16 as being unpatentable over Bishop in view of Chambers et al., and further in view of Flint et al. are respectfully traversed.

Claims 2, 5, 11, 12, 15, 22 and 24 are cancelled. As indicated above, the limitations of former dependent Claims 2 and 5 have been incorporated into new Claim 1 such that independent Claim 1 now includes the limitation of a plurality of antenna nodes that each include a cable plant interface having a multi-carrier modulator including an OFDM multiplexer adapted to modulate signals received over the cable plant and output OFDM signals, and wherein at least some of the antenna nodes are configured to transmit the same signals at the same time on the same frequencies in overlapping coverage areas. Similarly, independent Claim 10 has been amended to incorporate the limitations of former Claims 11 and 12, independent Claim 14 has been amended to include the limitation of former Claim 15, and independent Claim 19 has been amended to include the limitations of former Claims 22 and 24.

In the June 17, 2005 Office Action, the Examiner variously combined three references to arrive at the determination that the subject matter of each of former Claim 5 (now incorporated into amended Claim 1), former Claim 12 (now incorporated into amended Claim 10), former Claim 15 (now incorporated into amended Claim 14) and former claim 24 (now incorporated into amended claim 19) was obvious – namely Bishop, Flint et al., “The CABSINET Project: A Flexible Cellular Broadband Architecture” 1998 IEEE (hereinafter “Flint”) and U.S. Patent No. 5,867,485 to Chambers et al. (hereinafter “Chambers”).

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. See Ex parte Levengood, 28 U.S.P.Q.2d 1300(Bd. Pat. App. & Inter. 1993). The present Section 103 rejection is based on a combination of teachings from multiple patents in an attempt to arrive at the claimed invention, however as will be explained in greater detail below, there is no teaching nor suggestion in the cited art for the combination, and thus the Section 103 rejections appear to be improperly based on hindsight reconstructions in which isolated disclosures have been picked and chosen in an attempt to deprecate the presently claimed invention.

The Examiner has cited Bishop as disclosing a distribution hub [21] for transmitting Internet signals and a plurality of video signals over a wired cable TV plant, and a plurality of antenna codes [6] including a cable plant interface [714] adapted to receive the Internet signals via the cable plant [2], and a multi-carrier modulator [742] (fig.7) adapted to modulate the Internet signals onto multiple carriers for wireless transmission to the plurality of subscribers. The Examiner has cited Flint as showing an orthogonal frequency division multiplexer for orthogonal frequency division multiplexing Internet signals, for the purpose of combating conditions such as multipath. The Examiner has then additionally cited Chambers as disclosing a communications system wherein some antenna nodes are configured to transmit the same signals at the same time on the same frequencies in overlapping coverage areas.

Regarding Claim 1, it is respectfully submitted that the three cited references fail to suggest, teach or provide incentive for their combination to result in the subject matter of present claim 1. Turning firstly to the primary cited reference Bishop, such reference teaches that the IEEE 802.11 is the preferred protocol for the wireless link between a cable plant and subscriber units, and teaches HiperLAN2 as an alternative [Bishop, column 12, lines 59-64]. It will be noted that such protocols do not employ OFDM or multicast arrangements in which the same signal is broadcast simultaneously at the same frequency into overlapping coverage areas.

Furthermore, Bishop repeatedly and in some detail discusses the use of the IEEE 802.11 protocol and does not suggest that there is any shortcomings with the stated preferred embodiment of IEEE 802.11 that would motivate a person skilled in the art to consider that another transmission protocol such as an OFDM based protocol would be required. Additionally, according to the preferred and alternative protocols disclosed in Bishop, adjacent network access devices having overlapping coverage areas specifically do not transmit simultaneously the same frequency at the same time, but rather hand off the downstream transmission from one network device to the other [see for example Bishop column 9, lines 55-60, which mentions that the client device communicates with whichever one of the network access interface devices is local to it].

Flint discloses the use of a fiber link for providing signals to an RF transceiver [Flint, figure 2], and does not even remotely suggest that a cable plant could be used to distribute a signal to a plurality of OFDM enabled antenna nodes. In fact, Flint teaches away from a distributed system such as that of Claim 1 in which a plurality of antenna nodes each having individual orthogonal frequency division multiplexers for communicating with the end subscriber units are used as Flint states at page 151, 1st column that:

“Furthermore, since each Macrocell contains 10 to 12 Microcells, the cost effective way to implement the portable mode is to use a central COFDM system directly feeding the 40GHz Macrocell front end transmitter, with parameters optimised for the 5.8 GHz Microcells channel between the local repeaters and the portable receivers.”
(emphasis added)

Thus, there is no motivation in Flint or Bishop to lead one to the system of distributed modulators each employing orthogonal frequency division multiplexing at different locations throughout a cable plant.

With respect to Chambers, which the Examiner as relied on to show multicasting, it must be noted that Chambers does not disclose the use of OFDM, and more importantly, Bishop specifically refers to Chambers and points out the shortcomings of Chambers as problem that Bishop is attempting to overcome. In particular, Bishop column 2, line 52- column 3, line 7 states:

“U.S. Pat. No. 5,867,485 issued to Chambers et al. and assigned to Bellsouth Corporation, proposes a low power microcellular wireless drop for a full duplex interactive network in which a cable connecting a bi-directional fiber network to a

subscriber premises is replaced by two wireless transceivers. A Network Interface Unit multiplexes and de-multiplexes signals transmitted and received from a number of subscriber appliances. These signals are transmitted and received by a roof or eaves mounted antenna. The upstream signal is up-converted, amplified, and filtered before being transmitted to a receiver. The system disclosed is a linear processing system, which amplifies the noise presented to the upstream path by the subscriber premises. Disadvantageously, the linear processing propagates any in-band noise and reduces the signal-to-noise ratio. The downstream signal is filtered, amplified, and down-converted before entering the Network Interface Unit and de-multiplexed to the appropriate appliance. The wireless drop succeeds in isolating the subscriber premises from the bi-directional fiber network, but does not remove the noise injected into the upstream signal. There remains a need, therefore, for a method or system to limit the noise ingress into the upstream path." (emphasis added)

Thus, by highlighting perceived shortcomings of Chambers, Bishop specifically teaches away from any modification of Bishop to adopt features shown in Chambers.

It is submitted that there is no motivation, suggestion or incentive to combine the three cited references to arrive at the subject matter of independent Claim 1, as amended, and accordingly Claim 1 and the claims that depend from it are directed to inventive subject matter and should be allowed.

Regarding Claim 10, amended independent Claim 10 is similar in some respects to amended independent Claim 1 and includes, among other things, the limitations of a plurality of cable/wireless television transverters connected at remote locations to a coaxial cable network, the transverters being configured to receive television signals transmitted over the cable plant from the distribution hub, convert the television signals into orthogonal frequency division multiplexed (OFDM) television signals for wireless transmission, and transmit the converted television signals over wireless paths to a plurality of mobile subscribers units, wherein at least some of the plurality of transverters are configured for broadcasting the same OFDM television signals at the same time on the same frequencies in overlapping coverage areas. Thus, it will be appreciated that amended claim 10 specifically pertains to a system in which television signals are broadcast from the wireless transverters.

It is respectfully submitted that the reasons set forth above for distinguishing Claim 1 from the three cited references also apply in respect of amended Claim 10, and accordingly

Claim 10 and the claims that depend from it are directed to inventive subject matter and should be allowed.

Regarding amended Claim 14, such claim includes, among other things, the limitation of a plurality of antenna nodes located in a service area and coupled to the distribution hub by the cable plant and including means for (i) receiving the downstream IP signals from the wired cable TV plant, converting the downstream IP signals into orthogonal frequency division multiplexed (OFDM) signals for wireless transmission and transmitting the converted downstream IP signals over-the-air to the mobile subscriber units.

It is respectfully submitted that the reasons set forth above for distinguishing Claim 1 from the three cited references also apply in respect of amended Claim 14, and accordingly Claim 14 and the claims that depend from it are directed to inventive subject matter and should be allowed.

Regarding amended method Claim 19, such claim includes, among other things, the limitation of, at antenna nodes through a wired cable television network, converting communications signals into orthogonal frequency division multiplexed (OFDM) signals and transmitting from at least some antenna nodes having overlapping coverage areas the (OFDM) signals over-the-air at substantially the same time and on substantially the same carrier frequencies to the plurality of subscriber units.

It is respectfully submitted that the reasons set forth above for distinguishing Claim 1 from the three cited references also apply in respect of amended Claim 19, and accordingly Claim 19 and the claims that depend from it are directed to inventive subject matter and should be allowed.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 2 – 5, 11 – 18, and 22 - 24 be withdrawn.

Newly added Claim 25 depends from independent Claim 19. When the recitations of Claim 25 are considered in combination with the recitations of Claim 19, Applicants submit that Claim 25 likewise is patentable over the cited art.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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